

## ABSTRACT OF THE DISCLOSURE

A system and method for the reduction of noise radiated by a vibrating structure at a given frequency are disclosed. In systems of the invention, a radiation-cancelling device that acts like a resiliently supported mass with a significant sound radiating area is attached to the exterior surface of the structure to be quieted. Radiation from such a device, when constructed so that the motion of the vibrating structure provides the driving frequency for oscillation of the spring-mass system in the radiation-cancelling device and so that the natural frequency of the spring-mass system in the radiation-cancelling device is lower than the vibration frequency of the vibrating structure cancels the sound radiating from the (preferably) considerably larger vibrating surface to which it is attached. If appropriate, more than one radiation-cancelling device may be attached to a given vibrating structure in a system according to the invention.

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